

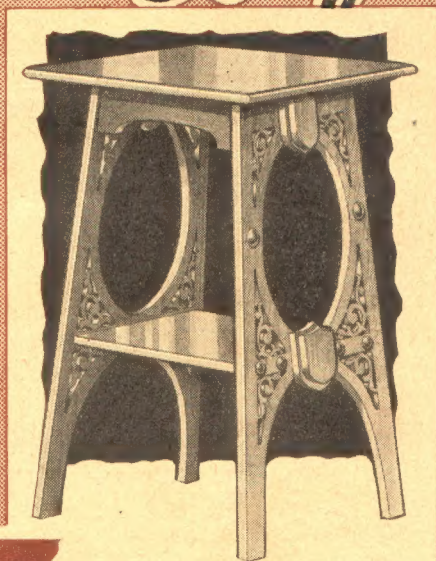
Hobbies

WEEKLY



*more
OO Gauge
Railway Models!*

*Free Table
Coffee Table
Design*

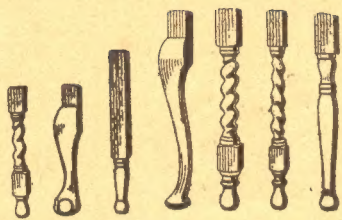


March 30th. 1935

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Vol. 79. No. 2058

**THE FRETWORKER'S AND
HOME CRAFTSMAN'S JOURNAL**



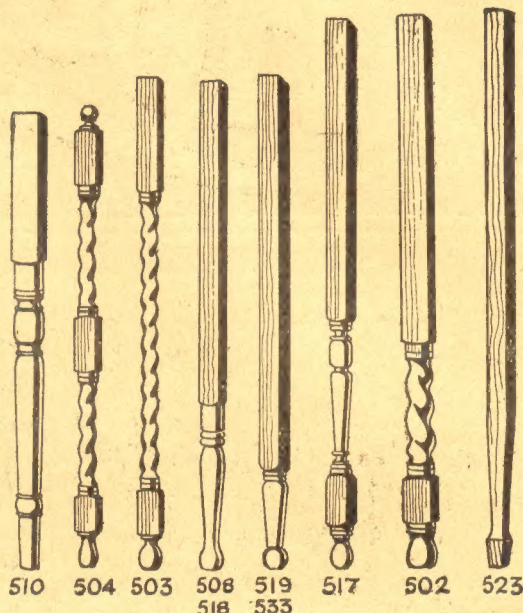
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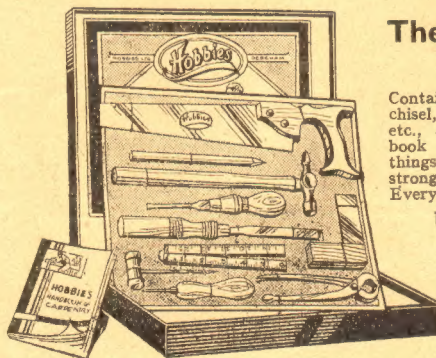
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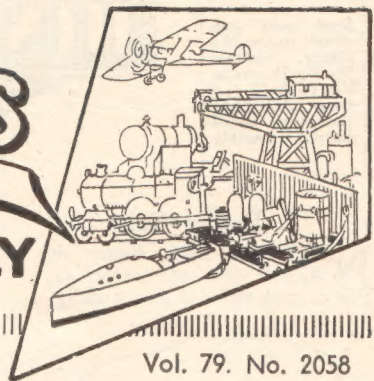
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Hobbies

WEEKLY



March 30th. 1935

Letters should be addressed to
The Editor, Hobbies Weekly,
Dereham, Norfolk.

Vol. 79. No. 2058

ANOTHER excellent range of really interesting things to do and make this week. From small gauge Passenger Coaches to a reversible Fireplace Screen, or from Cycling Notes to Photography. No wonder I keep hearing of disappointed people who find their newsagent has sold right out. Please remember, you can get Hobbies Weekly *anywhere* if you tell your usual agent to have a copy for you. He can get them quite easily, but you must be on the safe side and give a definite order for one.

NEXT week we are going to have some real novelties for Easter which you can make and probably sell to your friends if properly made up. And, of course, there will be the new monthly feature of Scout Notes which are proving so popular.

HERE is another model maker who has completed an amazing replica of the "Cutty Sark". He is Mr. Ed. Tebb, a Keighley (Yorkshire) electrician, who has, in his spare time, constructed a scale model of the record breaking clipper "Cutty Sark." It is complete to the most minute detail and in its construction he has used pins, needles, fine fuse wire, watch fittings, cycle spokes, eyelets, etc. Its length, from the end of the bowsprit to the stern, is about 32 inches and its height is 22 inches. The hull is carved from a solid piece of timber.

READERS living in or around Sandal, Wakefield, will be interested to hear of Club activities being undertaken by J. E. Carr of 37 Canal Lane,

Stanley, and they should get in touch with him for further particulars.

ANOTHER Club actually in being is at Shrewsbury, of which C. W. Clews of 32 Castle Foregate, is the leader. Competitions are run for members, and a sale of all articles made has been arranged. This means a profitable occupation and the enthusiasm of members under an able leader should make the Club a complete success. Work and play together for profit and pleasure is going to be worth while for any reader who joins.

NOTES of the WEEK

More Interesting Articles — A Model "Cutty Sark"—Hobbies Clubs for Wakefield and Shrewsbury — Back-slang Language—2,000 Regimental Badges!

HAVE you ever tried to talk a secret code with your pals? A reader asked me for one quite recently, and it is really simple when you get used to it, by a little practice. Back-slang, as it is called, merely consists of putting the first letter of the word at the end, and adding the sound of "aye." For instance, "Yes" would be "Esyae." By doing this for every word of the sentence, a totally different impression is obtained, and although, of course, at first it is a little awkward, many fellows can talk quite quickly.



THE range of things collected by various hobbyites never ends. Have you heard of making a collection of army badges? Every Regiment has a different badge for its cap, you know, and G. Barter of Dover has acquired one from nearly every Regiment in the British Army. He has been saving and sifting them for nearly 40 years, and now has about 2,000 of them.

The Editor

Send your own simple tips to The Editor, Hobbies Weekly, Dereham, Norfolk. Keep them short and add rough pencil sketches if possible.

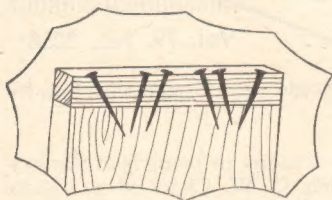
HINTS AND TIPS



For original Tips published the sender will receive one of Hobbies Self-filling Fountain Pens. We cannot acknowledge or print all tips sent in.

A Better Grip

NAILS will hold better if dipped into sal ammoniac, this causing them to rust rapidly.



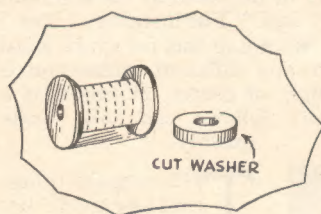
If nails are driven into the end grain of wood at an angle, as shown in the section drawing herewith, they will take a much firmer grip, and cannot be pulled out straight.

Bicycle Bar Grips

BEFORE putting handle grips on your bicycle, place them in warm water for a few minutes. This prevents them from slipping or coming off.

Easily-cut Washers

HERE is a simple plan of saving trouble in cutting washers for small models. Get a cotton reel and cut vertically



across the grain. In each cotton reel there is a small hole which is usually just large enough for axles of the model to pass through. If it is too large, fill in with plastic wood and bore to the size required.

A Painting Tip

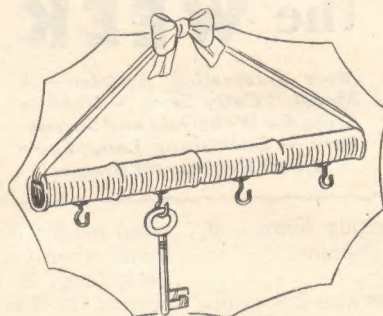
AN effective way to save white-wash or paint getting on your hands is to cut an old rubber ball in two and put it on the handle of the brush as a cover for the fingers. The paint then drains off on to the convex surface of the ball.

Gardening Tip

HERE is a useful hint for the garden. Get as many cigarette-packets as you can, destroying the insides. Place these in a long box, filling with mould and putting the seeds in as required. When planting out, place the whole pot into the ground, thus avoiding any root disturbance.

A Bamboo Key Hanger

YOU obtain a piece of bamboo about 6ins. long. Then obtain four small hooks, screw the



hooks in about 1 in. apart. Obtain a piece of ribbon, threading through the hollow piece of bamboo. Now tie the piece of ribbon in a neat bow, enabling hanging.

A Five-Minute Teaser !

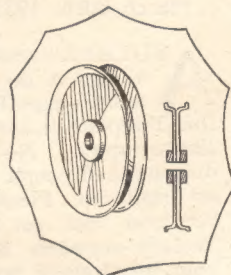
*Eight arms—but no hand,
A wooden leg, but cannot stand,
Is often wet but cannot feel,
Has no boots, but is shod with steel,
A dress of silk with a belt round the middle ;
Now can you guess this silly riddle?*

Work it out for yourself and see the answer in next week's issue.

Last week's answer—Six dozen dozen is 864, whilst half a dozen dozen is only 72 !

Pulley Wheels

HERE is a hint to make pulley wheels. Take two paint pot lids and solder the insides together. Then bore a hole for the axle and screw wooden rings to both sides of the wheel. The drawing of the idea shows clearly what an excellent job can be made. Other similar and smaller lids can also be used if a more suitable size is required.

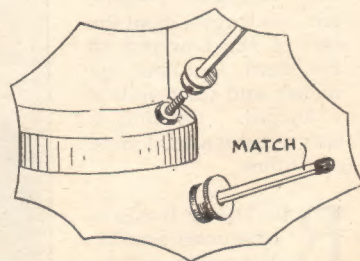


Scraping Curved Surfaces

TO smooth a piece of warped or curved wood, it is sometimes difficult to get the plane to cut smoothly on the inner surface of the wood. This may be easily and cheaply overcome by using a straight edged piece of glass. Hold the glass firmly in both hands with the straight edge downwards, and scrape the wood with this. Experience will show how hard it is necessary to press on the wood.

Awkward Terminals

WE often find terminals on coils and other wireless components very difficult to get at when the set is nearly completed. This can easily be overcome with the aid of a match as the diagram.



The end is stuck into the terminal just enough to hold it whilst being placed in position and turned to fit the screw.



A COFFEE TABLE

THOSE who like to combine fretwork and furniture have an excellent opportunity in the piece of work, illustrated, which can be made from Design Chart No. 2058. On this, patterns are given for the making of a full size Coffee Table standing just 1ft. 8ins. high and having a sensible sized top 12ins. by 16ins.

Such a table as this, indeed, is useful for a number of occasions and just the sort of thing to have handy in a room. You can make it for yourself or, if you have any friends getting married, it is particularly suitable to make up as a gift.

Although it is a strong and useful piece of furniture, it is well within the ability of the average worker to be able to complete it with a fretsaw and a few carpentry tools as well. At first sight, the size appears too large for the usual frame, but it has been planned in parts so that reasonably sized pieces only are used.

In Oak

A practical piece of work like this demands good wood, and needless to say it should not be made in plywood or anything cheap and ugly. Make it up in oak, or even walnut, in order that you may be able to finish it off with stain to provide a piece of furniture both good looking and practical.

All the parts are in $\frac{3}{4}$ in. wood and not too large to cut, providing Hobbies fretsaw blades are used. There is, after all, not a great deal of intricate cutting to be done, and the principal work is the fitting together of the completed article.

The general construction is simple, but a study of the design pattern parts should be made first. The side legs are not made in one piece as would appear, but cut from two pieces of wood. They are glued and screwed to the lower cross shelf and two upper rails, thus forming a very solid and substantial framework for the top.

As four legs are required, it will be necessary to

trace off the patterns given or—which is easier—to buy another copy of the design. The grain of the wood runs from top to bottom parallel with the straight edge as much as possible.

Saving Work

This long straight edge, by the way, should be pasted down close to the edge of the wood, and thus save the cutting of the long line shown. Get the pattern down quite flat and then cut out the outline. This reduces the weight and size of wood to handle, and makes it much easier to undertake the interior frets.

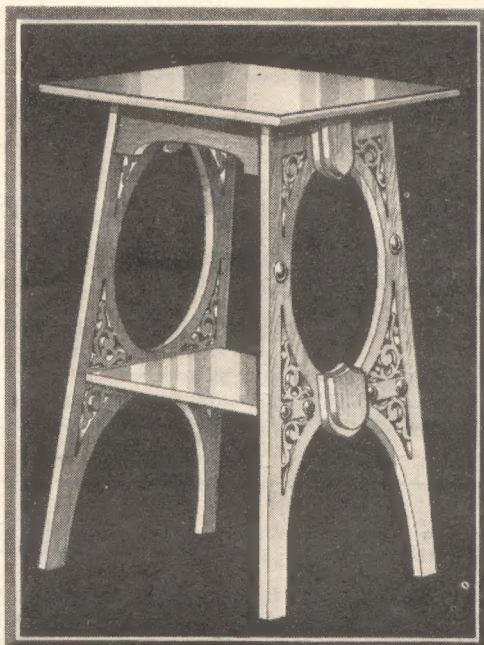
The minor curves of the pattern go to make up a pretty design, if properly completed, and when the work has been done, make some mark on the wood to indicate the position of the shelf. This, of course, should be done before the paper pattern has been glasspapered away. The dotted lines indicate the position of this shelf, whilst circles show where the little round buttons are fixed. These buttons are not only ornaments, but serve the purpose of hiding the screw which passes through the side into the edge of the shelf.

Taper Legs

A fairly long screw should be used and counter-sunk well into the side. The hole is then covered by the shaped button, as shown in the detail at Fig. 1. The two parts forming one side are fitted close to the shelf and upper rails.

The end of this top rail, it will be noted, slopes slightly outwards, which makes a taper to the legs.

This should be allowed for when gluing and screwing the legs themselves to the bottom shelf, and it is advisable to test all the parts in place first. The side rails do not come flush with the outer edge of the leg, but are set back $\frac{3}{16}$ in. They, too, are glued in line with the sloping edge of the leg, so the top edge must be planed square to take the actual top of the table.



MATERIALS SUPPLIED

For making this Table, a parcel of Oak is supplied, including sufficient No. 35 Beading and No. 219 Buttons. Complete for 9/6 or sent post free for 10/9.

A Coffee Table—(continued)

The join of the two legs is hidden by ornamental shields cut in wood, the lower one is shaped from two $\frac{3}{4}$ in. thick boards, or if preferred, the smaller one can be thinner, to form a neater overlay. They are glued an equal distance between the legs and form a strong joint there.

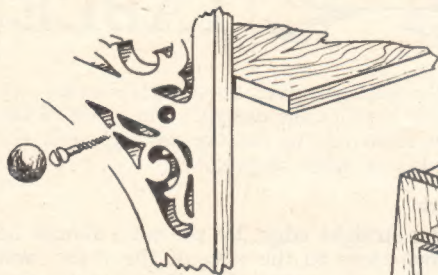


Fig. 1—The screw hole and its cover.

The upper ones, it will be noted, have straight top edges, and these come flush with the top surface of the leg. Another point. To strengthen these parts up and also to provide a larger surface to glue down to, fillets are glued inside (see Fig. 2). This fillet can be cut from thick wood glued to hold the legs together, and also flush with the top edge.

The top itself, is composed of a single piece $\frac{3}{4}$ in. thick, 12 ins. wide, and 16 ins. long. It should be strengthened up on the underside across the grain by struts to prevent it warping. The top is laid centrally on the framework to the legs, and there glued in place.

Strengthening Blocks

Blocking strips should also be neatly cut to fit the angle of the underside and pressed well into the corners. Turn the table upside down to do this,

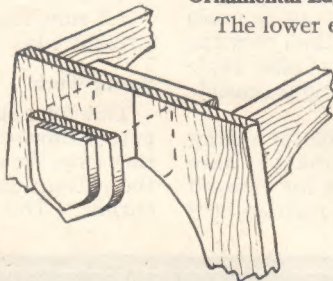


Fig. 2—The top shield pieces cover the join.

and maintain the weight on the legs until the glue on all the blocks and parts is set.

The table top is given the appearance of very much thicker wood by the addition of overlays (see Fig. 3). Strips are glued beneath the top flush with the edge. These strips are $\frac{3}{4}$ in. or $\frac{1}{2}$ in. wide and $\frac{3}{16}$ in. thick and can be cut into short pieces about two inches long or made the complete length of the side. On the edge of the table, half-round beading (No. 35) $\frac{1}{2}$ in. wide is glued.

Ornamental Edging

The lower edge of this beading comes flush with the bottom edge of the glued strips so the top of the beading is really just below the table top itself. This gives the appearance of a much thicker wood being used.

The whole of the table should be stained in oak and it can be made quite dark or a fairly light shade, according to taste. A spirit stain is applied because it dries quicker and does not raise the grain. It can be put on the edges of the frets quite easily with a brush.

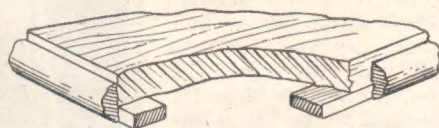


Fig. 3—The false thickness and beaded edge.

The table can then be given a semi-glossy appearance by finishing it with wax. Or a highly polished surface can be brought about by the use of the amateur's Lightning Polish. Remember to shape the bottom of the legs so they rest flat to the floor.

Bind your own copies of Hobbies!

HERE is a new and novel binding case in which to keep your Hobbies Weekly. Each copy is easily put in and fixed so it can be opened to lie flat at any page required. The cover is of strong card, bound in imitation leather with a solid back.

The books are held in place by ingenious wire staples. All you have to do is to open the book to the centre pages and press two of the staples through the hinge into the solid cork back of the binding case.

As each issue comes

out it can be put in place neatly, or just as easily taken out if necessary. The cases are wide enough to hold two dozen copies so two of them complete a volume easily.

The case costs only 3/3 with two dozen staples (extra staples 3d. a dozen). Ask for the "Azabook" Binder at any Hobbies Branch or send P.O. for 3/6 for one to Hobbies Ltd., Dereham, Norfolk.

The binding cases are strongly made and bound in handsome brown imitation leather with mottled effect. The back is squared rigid.



OO-GAUGE MODELS

Several previous articles of this series have already appeared.

Passenger Coaches

THE best method of building passenger coaches for this small scale is to use the very low-priced parts which can be obtained from all 'Merco' agents, and which have been designed for the purpose by the writer. These consist of ready-shaped roofs and floors in wood, lithographed sheets of finished side papers, bogies, buffers and couplers, as well as roof furnishings.

If desired, celluloid strips can also be bought for a few pence for the windows.

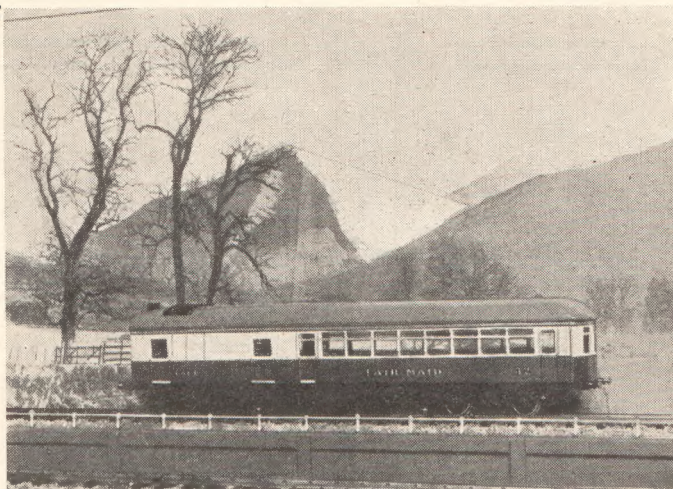
Celluloid is the best material for coach windows being light in comparison to glass. An engine that will pull three glass coaches will pull seven or eight in celluloid. Another fine scheme is to make coaches in 'articulated sets' as is done in actual practice.

This can be done with G.W.R. and L.N.E.R. models freely, and on free-lance lines. But, as yet, there are no articulated sets on the L.M.S. or S.R. In this system, instead of each coach having two bogies, a train of two coaches will have three bogies for the entire train, one at each end, and one in the centre serving for both the inside ends of the vehicles.

Articulated Coaches

Special OO-Gauge articulated bogies, pivoted and drilled for screws at the ends instead of at the centre, may be had. This idea can be gathered from Fig. 1, which shows an L.N.E.R. articulated bogie in position. This sketch is produced full size for the actual model.

This method, of course, greatly reduces weight and cost of building, only about half the number of bogies being required. It also gives a much better swivelling movement to the train, and allows closer coupling of coaches.



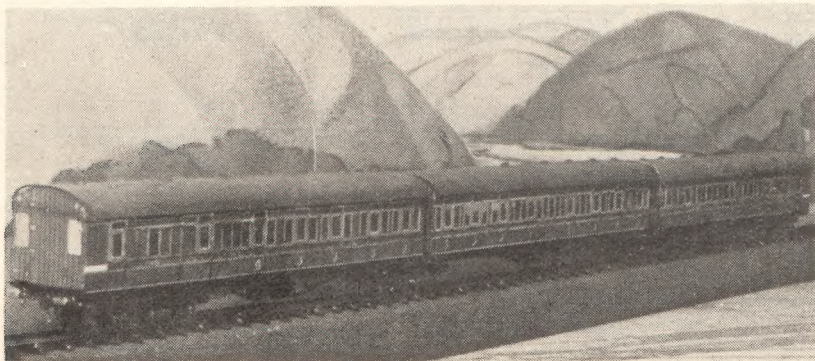
A realistic coach with striking background.

Any smart worker can build these cars, and the way to start is to cut the top and bottom (wood) to the exact length of the side papers. Then see that your celluloid strips are exactly $\frac{1}{4}$ -in. wide and perfectly parallel. Celluloid should be as thick as possible, fully as thick as the ready-made grooves in the woodwork. It may be cut with a razor and metal ruler by laying it on a flat sheet of card on which the lines of width have been drawn. Next cut two little blocks of $\frac{1}{8}$ -in. wood, 1 in. long and $\frac{1}{4}$ -in. wide.

The Shapes

These are carefully placed in position between roof and floor as in Fig. 2, about $\frac{1}{4}$ -in. from the end, and thin nails are driven through roof and floor into the blocks.

This is best done by holding the model in a mitre box, flat against the inside, to get it all perfectly symmetrical. Now glue in the celluloid strips with Seccotine, first seeing that the inside faces are clean, and first painting the inside woodwork of the coach dead black. Indian ink will do. There are two shapes of ends, some being specially domed as in Fig. 2, others ordinary as Fig. 3. The domed ends are very easily made by cutting off corners of the roof as in Fig. 4. Then cut a slope off the top as in Fig. 5. All this may be done with a sharp knife. Next take a piece of fairly coarse sandpaper and lay it in the palm of the hand and rub the end on the sandpaper to get the



A train of articulated coaches built with celluloid and paper as explained.

00-Gauge Model Passenger Coaches

(CONTINUED)

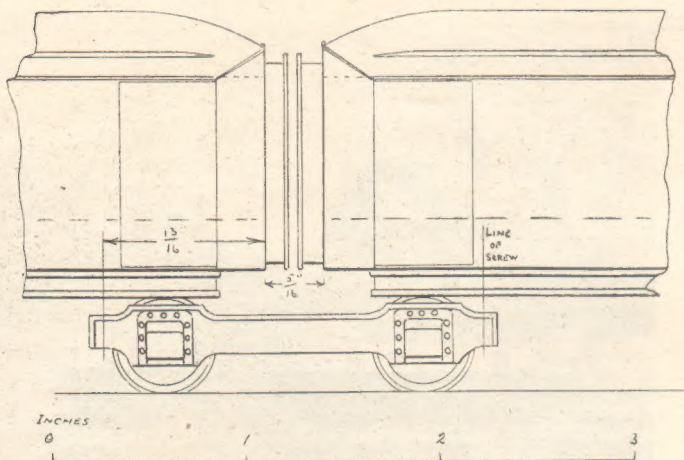


Fig. 1—The making of articulated bogies for coaches.

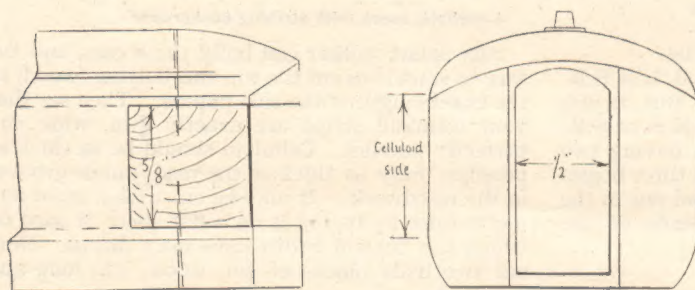


Fig. 2—The domed roof and end to several coaches.

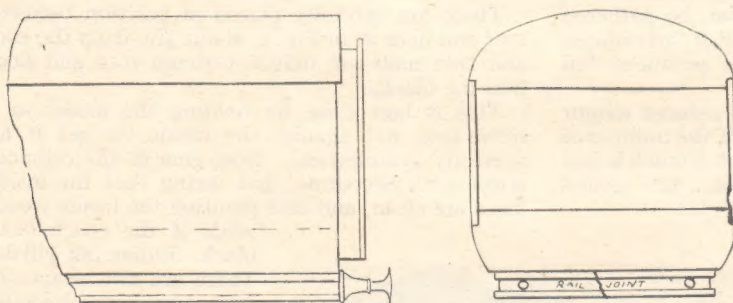


Fig. 3—The more rounded shape in ordinary type.

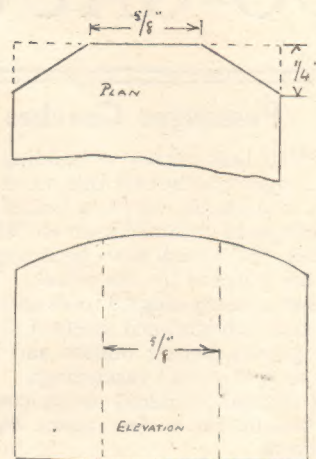


Fig. 4—How to shape the ends.

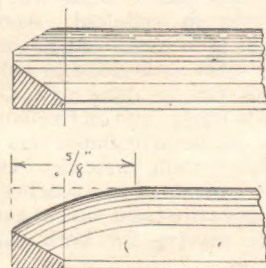


Fig. 5—Round off the end of the top to this shape.

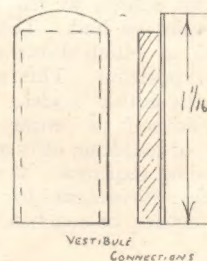


Fig. 7—The corridor connection at the ends.

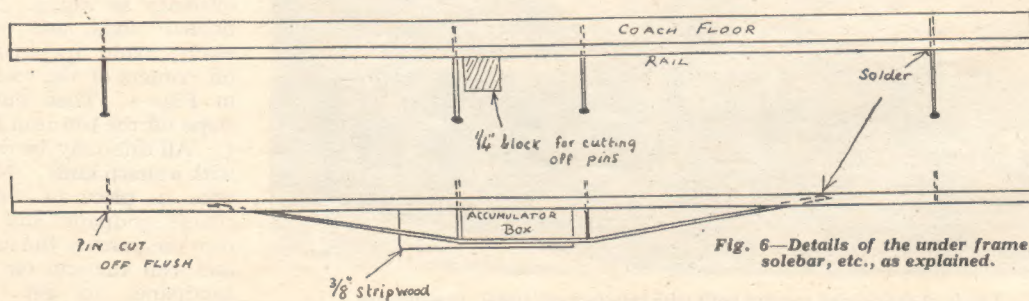


Fig. 6—Details of the under frame, solebar, etc., as explained.

00-Gauge Coaches—(continued from page 637)

correct shape. Keep the ends of the roof as angular as possible.

The true shape is shown in the lower sketch Fig. 5. This having been done at both ends or at one end only, as required (articulated coaches have generally only the two extreme outer ends domed) glue on a cardboard mask, cut from postal card and lightly scored as on the dotted lines of the lower sketch in Fig. 4.

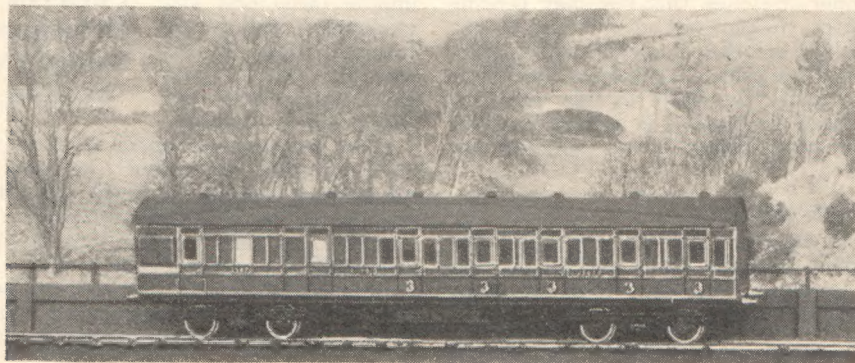
The mask is not only glued on, but fixed with bits of glued paper strips as in Fig. 1. Your body is now ready for the side papers.

For the simple roof use the wood pieces as supplied, and if desired cover the roof, when finished, with a piece of drawing paper just projecting over

the middle and leave a central gap. The corridor connection will cover this (see Fig. 7).

The Solebar

The metal solebar, underneath the body, is made from a piece of 00-Gauge rail, carefully bent to shape with pliers. It is soldered in place to common pins driven in the floor. These pins are placed two at each end, about an inch from the end, and four others about the centre, or (for articulated coaches) as shown in Fig. 6. These inner pins serve for the truss rods also, which are soldered to the ends of them after they have been cut off with snips, using a piece of $\frac{3}{8}$ in. stripwood for a guide. The truss rods are simply wire,



A single coach made with lithograph paper sides in 00-gauge.

the ends and coming exactly flush with the top of the sides.

The floors are ready shaped to give a desired bow to the sides, and the wood should be sandpapered down flush with the celluloid, care being taken not to spoil the polished 'glass' surface. The plain ends taking a plain cardboard mask.

The Sides

Now set to work on your sides. The windows can be very quickly cut out with a razor, by free-hand. Do not tear the papers, and do not cut the sides from the sheets until you have cut out the windows.

After cutting the sides, glue the reverse surface thinly, spreading it over every part with the small finger. Then stick in place, laying the top edge first in position and pressing down with a clean rag.

The ends are done similarly; but if the end is domed and the paper is found too narrow, cut it up

soldered to the pins and to the inside of the solebar.

The Buffers

Before fixing the solebars, holes are drilled in the rail for buffers, at one end or at both ends, as needed. On articulated coaches there are no buffers or couplings, except on the extreme ends of the train. The buffers are next soldered in position, and the loose ends of the rail solebar are soldered together.

Dummy accumulator boxes are of $\frac{3}{8}$ in. stripwood, $\frac{1}{2}$ in. long, glued on the floor. The underframe is then painted dead black. Holes are drilled for the bogie pins, and the bogies fitted.

Roof lights are stuck with glue in holes drilled along a perfectly straight line down the centre of roof, one light over each door, etc. The weatherstrips on the roof are very thin card strip glued on, all glue being carefully wiped off. All that remains is now to fit the simple couplers and paint the roofs.

We give here some photos of a number of these coaches, which have been made by the author.

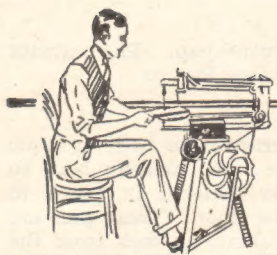
A Grease Gun for Soldering !

IN the house, workshop or garage—anywhere where there is simple, speedy soldering to be done—you will find a tin of Fluxite for every handy man knows that Fluxite simplifies all soldering.

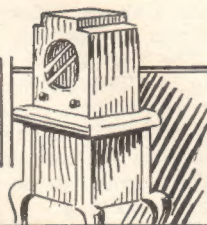
And now there is the new

FLUXITE GUN—to simplify it still more ! The Fluxite Gun is a neat handy contrivance—always ready to put Fluxite on the soldering job *instantly*. A little pressure places the right quantity on the right spot—and one charg-

ing lasts for ages ! The Gun also projects grease into bearings, etc. ; and is used for grease like an oil can for oil. Ask your local Ironmonger to show you one. It costs only 1/6—and apart from its usefulness in action it is clean in use !



THE ART OF FRETWORK



IN the last article we mentioned how best to use design patterns and how to economise in the matter of putting them down on the wood.

We mentioned then, the question of paper being put down carefully so it did not stretch. This is important if one has a long straight cutting line, and if the paper stretches, that line may become curved and throw the part out when it is to be cut.

Lots of workers put their paste on to the paper, but this is one of the principal causes of stretching. Far better to apply the paste to the *wood*, so keeping the paper dry until it is actually in position. Get the paste spread evenly and not too thickly.

Apply Paste to the Wood

Have a paste which will hold the paper properly and not, as some cheap and badly mixed pastes do—allow the pattern to tear up or peel off when cutting is being undertaken.

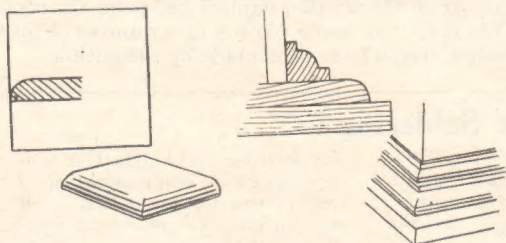
The paste should be free from lumps and made with some preservative which will



Use a strong and reliable paste.

keep it from going sour when not in use.

After much experiment, Hobbies have made up a special form of paste which is clean, pure and strong, and which will keep a very long time. Moreover, it does not smell and can be used quite economically without using a lot.



The two upper illustrations give sections; the two lower ones show the finished work and shapes.

Have a clean soft brush for pasting down and a clean duster in readiness. When the pattern is on the wood, pat the duster on the middle piece first and gradually work towards the outer edges. In this way the pattern goes down flat without any wrinkles or air bubbles.

If the pattern does happen to crease, it should be lifted partially and relaid. Do not attempt to rub it down because the crease will not only make a bad patch, but also throw the pattern out of true.

It is a good plan to paste the patterns all down first, and not just as they are needed. This allows an interval of time for the paste to become dry; the cutting being commenced on the first pattern by the time the last has been put down.



In the case of large patterns, roll them off on to the pasted wood.

Never attempt to do any cutting while the paste is wet. If you do, the paper will pull up and tear, or the sawdust made by the cutting will clog the sawcut or stick on the damp paper around the actual cutting line and so hide it.

In the case of large patterns, it is a good plan to roll them out on to the wood to ensure their keeping flat. For this, a round ruler or a length of clean smooth broom handle will do. The paper is turned round this stick and then rolled off on to the pasted wood, as shown in the picture herewith.

Before we go further, it may be as well to explain one or two ways in which patterns are sometimes shown on the sheets, in order to clearly understand what they mean.

Scale Drawings

In most cases designs are shown full size, but this is not always possible in the case of large patterns. In other cases there is no need for this because the part concerned is merely a plain rectangle.

8th Article

Pasting the Wood —Rolling on Big Patterns—Scale Drawings.—Ex- tended Patterns— Section Details

The Art of Fretwork—(continued)

In the latter case, the size and proportions of the pattern are shown by what is called a scale drawing. This is merely a reduced facsimile of the actual thing, done in the correct proportion, but showing the measurements to be marked on the wood.

A small drawing may be marked off as a rectangle with the dimensions of 1 ft. 2 ins. on one side, and



The pattern is shown on the sheet in two parts, but has to be extended on the wood as seen in the second picture.

feet on the other. Arrows and lines show which is the longer side, and it is quite an easy matter to rule the wood of this size.

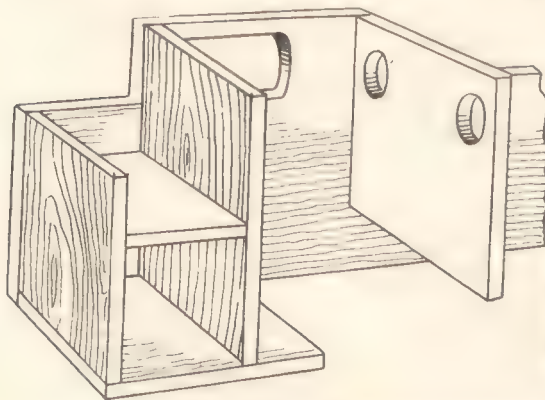
Be careful, of course, to use a straight ruler, a sharp pointed pencil, and a square in order to ensure the correct angles at the corner and true straight lines.

In other cases a pattern may be straight on two edges, but have shaped ends which would be awkward to mark out from a small drawing.

Extended Patterns

In such circumstances, a pattern is usually provided with the ends full size and the straight portions are broken down, the distance between being printed in figures.

Take the case of a fancy shelf, for instance, such as that shown. It is illustrated on the



Note how the work will look made up and how the dotted lines show the positions on the patterns.

sheet with the two end portions close to each other and the measurement given between.

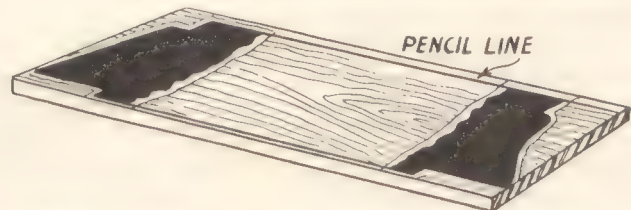
The two parts so printed have to be cut out separately from the sheet as two independent patterns. This being pasted to the wood at one

end, and pencil lines are run off accurately along the board. Measure them up carefully so they are parallel and do not taper.

Then measure the distance shown on the design and make a pencil mark to indicate it. Now paste the second portion in this position so there is the correct space between the parts as printed. The illustrations given, show the process clearly.

One must always remember that care taken in the preparation of these patterns before cutting, may save a lot of trouble later.

For instance, there may be tenons or mortises on these extended parts, and if they are not accurately



carried out, then the actual joint will not fit when the parts come to be cut.

These "broken" patterns, by the way, are always shown by an irregular line, as can be seen in the detail, and this indicates where the patterns can be cut through to extend them to their proper length.

On lots of patterns you will find dotted or broken lines printed across the ordinary surface. These indicate the position of adjoining pieces and must be noted before the paper is cleaned off after cutting. An example is given herewith which explains the process clearly.

These dotted lines may show where an overlay is to be placed or where upright sides to a box are to be fitted on.

That position, of course, will have been cleaned away before the actual fitting, so it will be necessary to mark it with a pin prick at suitable points or to measure off the distances and make a note of them.

Sectional Drawings

Many workers, when they begin, are at a loss to understand a sectional drawing which is also often given on a pattern to indicate shaping.

This section drawing merely indicates what the part would be like if cut through at the point

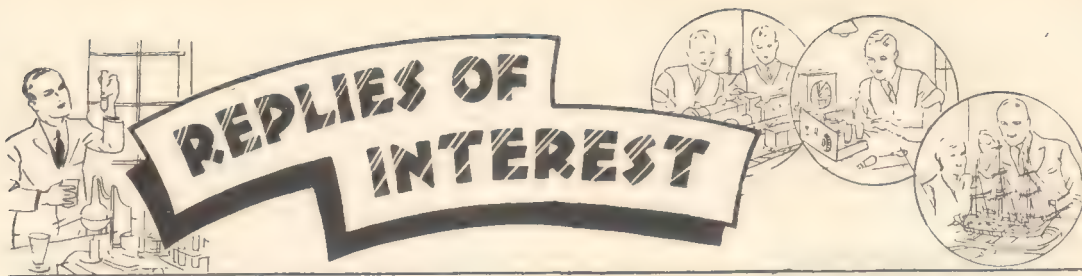


shown, as is clearly seen in the illustration.

It may be necessary, or advisable, to

round off the edge of the wood, or to shape it in some particular way. The plain pattern only gives a plan or flat view of the part. The section shows what it would be like viewed from one end.

(To be Continued)



Composition Making

PLEASE give me the details of how to make a composition from which it is possible to mould small terminal blocks and terminal heads, etc. Of course, it would need to have insulating properties, but I am not particular what colour it is.—(S.V.)

THE making of ebonite and bakelite mouldings and pressings is beyond the home worker. One needs superheated steam at high pressures for the actual formation of the compound and hydraulic presses for stamping the parts. When we require a special part here, there are two methods used which give satisfactory results. One is with gramophone records, and the other with vulcanised rubber. The record should be warmed over a small flame when it becomes soft and pliable, it can then be moulded to any shape with the fingers.

About the Planets

THESE points deal with astronomy. What are the respective Southern times between August 1st and August 30th of the following planets—Eros, Uranus, Neptune and Pluto?—(C.W.)

YOUR astronomical query is not one which can be answered briefly or off-hand, because to arrive at the figures you ask for, would take hours of calculation and several sheets of figures. In fact, the matter borders upon Scientific mathematics, especially when you remember that the volume of Uranus exceeds the earth's about 74 times, and the length of a day there is supposed to be between nine and ten hours. This planet's mean distance from the Sun is 1,764 millions of miles, and the length of a year 30,686,82 days or about 84 of our years. Neptune is a planet just beyond the orbit of Uranus and remotest from the sun yet known in the solar system. It revolves round the sun once in 164 years and its diameter is about 37,000 miles. Eros is merely an asteroid discovered in

1898 when it came nearer to the earth than Mars, while Pluto of course, belongs to the realm of classical mythology.

To Enlarge Designs

WILL you tell me the best way to enlarge a fretwork design?—(J.O.N.)

THE best way to enlarge is by use of a pantograph, an instrument for tracing off an original design and increasing it to almost

.....
A selection of answers we have sent to the many interesting enquiries received from our readers.
.....

any size required. This simple tool is obtainable from Hobbies Ltd., but instructions for making one were given in Hobbies Weekly dated May 28th, 1932. A copy of this is still obtainable, price 3d. post free. It means redrawing the whole of the parts, but no doubt this would be a labour of love.

A Microphone from Earphones

CAN I make a microphone from the earpiece of headphones? If so, how is it connected to the set?—(J.W.P.)

ANY headphone can be used as a microphone. A single earpiece only is required, and this is connected into a circuit comprising a battery and some form of receiver. The "carbon granule" earpieces give the best results, but the more common form with a metal diaphragm can be used. The sounds to be transmitted are directed on to the diaphragm in the same way as if speaking into a telephone. The sound will be very small from the receiver unless a battery is used. If "loud speaker" results are wanted, a valve amplifier, as in a wireless set, will be necessary. Alternatively, the microphone can be connected to the "pick up" terminals of a wireless receiver.

Puppet Shows

THE school I attend has become interested in puppets, and so have I. Having been given the job of starting a theatrical company for the school, could you please publish how to make the puppets and the dressing of them, and how to make and work a theatre?—(S.C.D.)

GET in touch with the Model Theatre Guild. It is patronised by real actors and numerous amateurs, and they supply their members with literature and generally run model theatres and marionette shows in a very interesting way. Write to Wells, Gardner, Darton & Co., Ltd., 3 Paternoster Buildings, E.C. 4 for a list of books.

Sources of supply are E. Thorpe, Esq., London Drawing Office, 98, Grays Inn Road, London, W.C.1.; and Seymour Marks, Esq., Hon. Sec. British Model Theatre Guild, 65, Hosack Road, Upper Tooting, S.W.1.

A Dull Reflector

HOW could I brighten my bicycle dynamo lamp reflector? I was cleaning it with metal polish and the bright stuff came off in places so the brass is showing—(M.W.)

THE reflector will have to be replated, but it would be much cheaper to get a new one. Unless it is a very old one, the makers would replace it, because any reflector should be able to stand ordinary cleaning.

Aquarium Aeration

I HAVE recently obtained an aquarium and some goldfish, but owing to bad aeration, several of the fish have died. Could you please inform me of a simple, cheap and effective method of aeration?—(H.C.)

AN article on the aeration of an aquarium appeared in our issue dated June 2nd, 1934, and a copy of it is obtainable for 3d. post free.

Buy a SAW during the Sale!

An opportunity to get yourself a saw at a fraction of the regular price. Hobbies sale ends March 30. Hurry! Hobbies Ltd., Dereham and Branches.



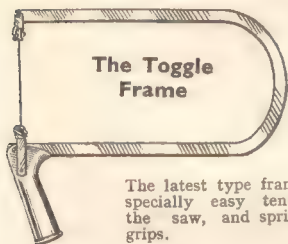
TENON SAWS

Here's a chance to get full size every-day saws at bargain prices.

9in. **1/6** 10in. **2/-** 12in. **2/3**
Postage 6d. extra on each.

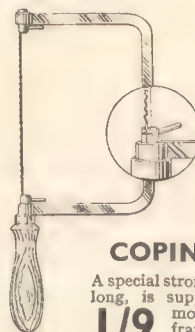
ALSO SPECIAL RANGE

6in., 1/4; 7in., 1/5; 8in., 1/6; 9in., 1/9; 10in., 2/3; 12in. 2/4



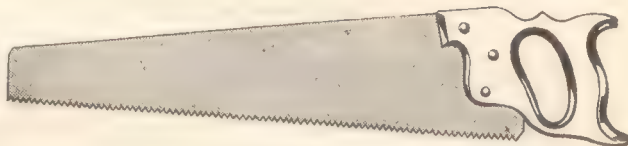
The Toggle Frame

The latest type frame with specially easy tension for the saw, and spring-open grips.



COPING SAW

A special strong blade, 6 1/2 ins. long, is supplied and the movement in the frame allows the saw to cut at any angle to the holder
1/9
Post 3d. Usual Price 2/6



SUPERIOR HANDSAW

A Sheffield-made saw which is a real carpenter's tool. Fitted with 18in. blade and comfortable handle.

12in. **2/-** 16in. **2/4**

Post 6d.

1/9

Post 6d.

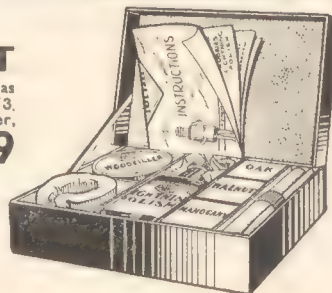
SALE

Why not buy your polish and stain requirements during Hobbies Sale? Here are definite money-saving opportunities which the keen craftsman simply cannot afford to miss. The complete Sale list shows hundreds of bargains. Have you a copy? If not, call at any Hobbies Branch or write to Hobbies Limited, Dereham, Norfolk.

BUY NOW and SAVE
Sale ends March 30th

COMPLETE POLISH OUTFIT

A Lightning Polish Outfit exactly as listed in Hobbies Handbook at 2/3. Contains a bottle of polish, filler, rubber, three stains, sandpaper and instructions
1/9
Post 6d.



You always need Polish.

COLOUR POLISH

Stains same time as it polishes. For use on natural wood. A great time-saver. In mahogany, walnut, ebony and oak.
1/6
Post 4d.



WATER STAIN

In brown oak, mahogany, fumed oak, ebony and walnut. Usually 8d. bottle.
5d.
Post 4d.



Buy now at money-saving prices.

VARNISH

Specially prepared for the home craftsman. A little goes a long way. Use it on any kind of wood.
6d.
Post 4d.



A SIMPLE FANCY BOX TO MAKE

THE handy little box illustrated is easily made in almost any fretwood with the aid of the fretsaw and the usual tools. The patterns below are full size, and can be pasted direct to the wood, or traced off in the usual way.

The parts are $\frac{3}{16}$ in. thick throughout, with the exception of the four rising sun overlays, which are cut in $\frac{1}{8}$ in. or $\frac{1}{16}$ in. wood and glued to the sides. The latter can, of course, be cut together to save time and trouble.

The pattern of the lid shows four little circles in the corners. These circles are to take a short length of dowelling which projects on the underside of the lid, and fits in the holes bored into the top of the corner posts, thus forming a holder when the lid is in position.

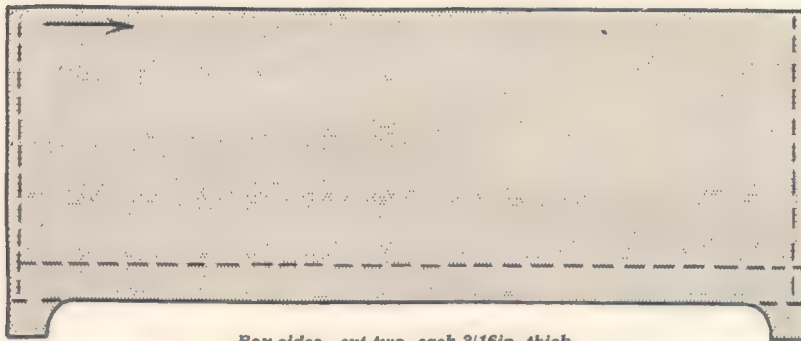
The overlay on the top of

the lid hides the and the handle ornamental $\frac{3}{16}$ into the mortis tional drawing shows the th together. Th of course, be fancy button ea ornament.

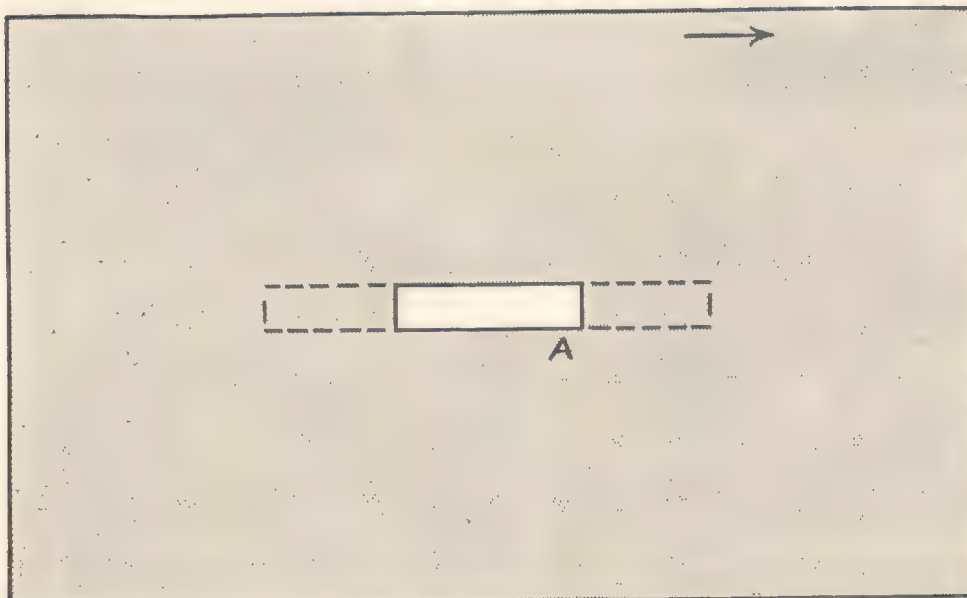
The construc forward because is used for t



Overlay—cut two, each $\frac{1}{8}$ or $\frac{1}{16}$ in. thick.



Box sides—cut two, each $\frac{3}{16}$ in. thick.



Overlay to lid—cut one $\frac{1}{8}$ in. thick.



Four pieces of grooved moulding as above (No. 36) are wanted $1\frac{1}{2}$ ins. long.



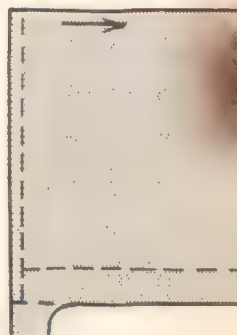
A hole is the moulding piece glued



Handle piece—cut



Overlay to ends—cut two,



Ends—Cut two,

KE IN FRETWOOD

these holes above, is formed of an 1/8 in. piece which fits in at A. The section on the lid piece is three parts glued together. Each handle itself can, ornamented by a piece on each side, or similar

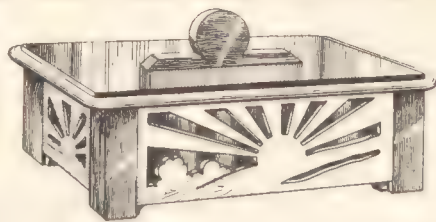
section is straight-grooved moulding between the corners. This

moulding is 1 1/4 ins. long, and the four main sides are glued into it flush at the top and bottom. The floor rests between, and has a little rectangle cut out to allow it to fit to the moulding. It comes flush with the cut-away portion of the sides and ends.

Get the framework of sides, corner and floor first, and then complete and fit on the lid. See the dowelling fits fairly tightly into the holes provided. The overlays can well be cut in a distinctive wood of a different shade, so they may stand up in

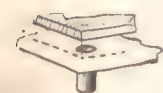
stronger relief when glued in place between the corners.

In cutting, do not cut the ends of the overlays until a measurement has been made to ensure they bed in nicely between the projecting parts of the moulding. The short pieces of dowelling are glued to the under piece of the lid, as shown



in the detail, and this projecting piece may be slightly tapered to allow it to sink in more easily.

The box can be stained and polished, or the wood left natural.



bored in the top of the lid to take the dowel under the lid.



3/16 in. thick.]



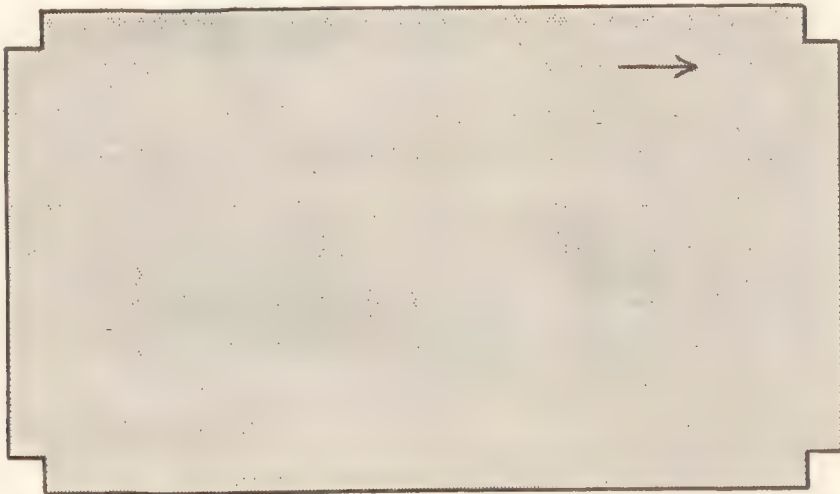
each 1/4 or 1/16 in. thick.



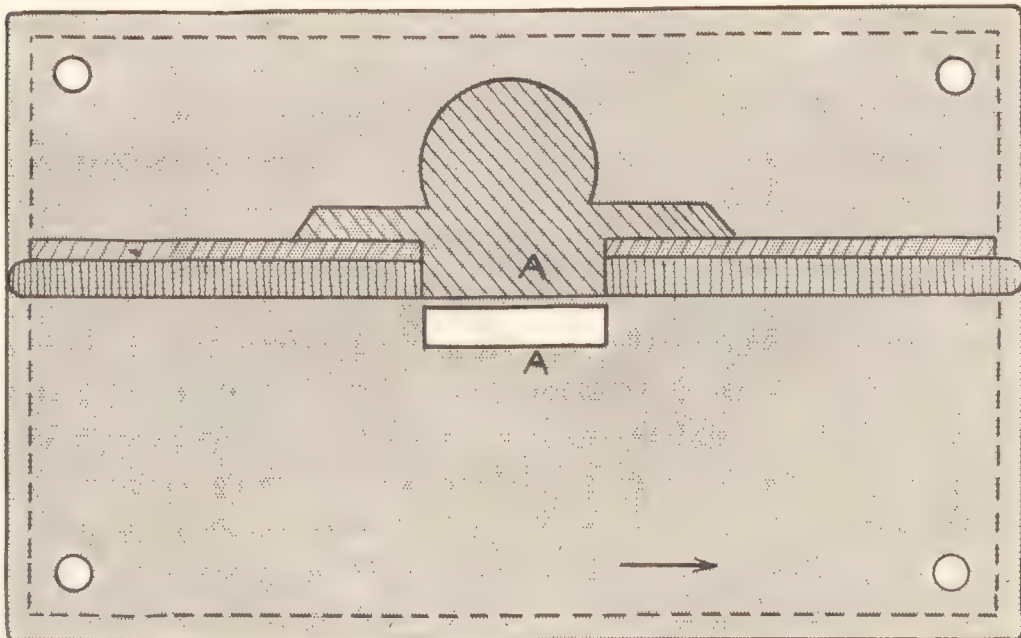
each 3/16 in. thick.



Cut four pieces 3/16 in. dowelling, the length shown above.



Bottom of box—cut one 3/16 in. thick.



Lid of box—cut one 3/16 in. and round off edges.

This is a real Sale!

POLISH



The regular 10d. size bottle of Hobbies Lightning Polish. A child can use it. Results guaranteed. **6D.**

Post 3½d.

Colour Polish

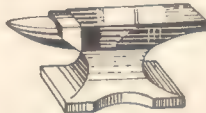
Polish and stain ready mixed for use on any natural wood. **EBONY, MAHOGANY, WALNUT or OAK.**

1/6

Post 4d.



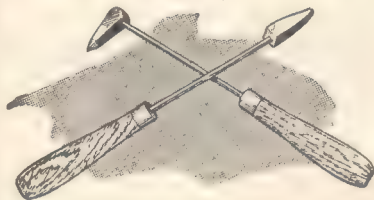
BENCH ANVIL



The base is provided with a screw for fixing to the bench. A handy little tool, 3½ins. long. **1/-**

Post 6d.

SOLDERING IRONS



Straight or hatchet shape as illustrated. 10ins. long. Ideal for the wireless constructor. Hurry for these!

9D.

Post 2d.

LAST WEEK!

Sale ends MARCH 30th

HURRY! Buy now from Hobbies Branches or direct from Hobbies Limited, Dereham, Norfolk.

SOLDERING OUTFITS



No. 1 contains Iron, Solder, Sal Ammoniac, Resin and full instructions. A big bargain. **1/6**

Postage 6d. extra.

No. 2—As illustrated. Iron, six bars Solder, Pliers, Sal Ammoniac, Resin and full instructions. Wonderful value. **2/6**

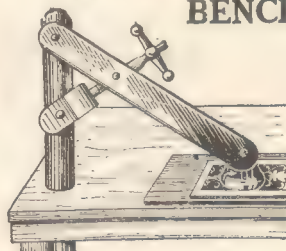


SMALL SAW

Just the saw for cutting small beadings, stripwood, etc. It has a 6in. blade. **1/-**

Post 3d.

BUY NOW!



BENCH CRAMP

A novel cramp fixed through the bench with strong grip for holding down work during cleaning, carving, nailing, etc.

2/-

Postage 6d.

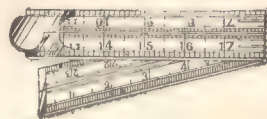
4 EGG CUPS

A new line in bright yellow earthen egg cups. To fit any fretwork design. **6D.**

Post 3d.



FOLDING RULE



Fits for any bench. Well made rules plainly marked in all sizes. **1/-**

Post 2d.

SCRIBING BLOCK

An engineer's tool offered at a big saving. **2/-**

Post 6d.



CRAMP

A strong cramp with 2in. opening. Buy two or three while you are about it. **9D.**

Post 5d.

Bargains for Everybody

A REVERSIBLE SCREEN FOR THE FIREPLACE

HERE is a design for a very serviceable fire screen of two leaves, hinged together, so that it will fold flat for packing away when not in use. It is distinctly novel in character too, as the side of each leaf is treated differently, so by turning the screen round an overlaid panelled effect is obtained one way, and a graceful and colourful transfer displayed on the reverse sides.

The effects of both sides are shown in the sketches of the finished screen at Figs. 1 and 2.

The Construction

The construction of the screen is simple, and each leaf consists of a panel of plywood $\frac{1}{4}$ in. thick cut to the shape shown in Fig. 3. First cut the two panels 27 ins. long and 11 ins. wide, getting the angles perfectly square, then divide up the lower end of one of the panels into one inch squares as in Fig. 4, and draw in the shape shown by the solid lines. Cut round this with a coarse fretsaw and clean up the edges with glasspaper.

Now use the cut-out panel as a template by laying it on the other panel and marking round the shaped outline. Finish this in a similar manner, and cut the mouldings which form borders for the panels.

The ideal moulding for the purpose is Hobbies No. 130, with a charming reed and cross band design and made in a wood which is suitable for staining and polishing.

Cut off the long pieces for the sides 27 ins. long and eight in number. Mitre one end of each piece at an angle of 45 degrees, and then glue them all on to the plywood panels, keeping the edges of the moulding, of course, flush with the edges of the panels.

Next cut off four pieces of the same moulding 11 ins. long and mitre the ends to fit the upright pieces. Before cutting these, however, check each length, for it may just happen that slight variations might occur in the widths of the stuff which would

cause either a wide open mitred joint or, perhaps, too tight a fitting piece which latter would be difficult to pare down again to a neat mitre.

Before marking or cutting any of this moulding, check off that the pattern will make a correct joint at the corners. This can be done by experiment.

The remaining pieces of moulding to put on are square at the ends and are glued on $\frac{1}{2}$ in. above the fretted opening at the lower end of the panels. Here again, the widths between the two side mouldings should be taken before each length is cut off. A set square will be found useful in checking the squareness of the cross mouldings with the uprights.

MATERIALS SUPPLIED

For making this Fire-screen, a parcel of plywood, whitewood and satin walnut is supplied, including sufficient moulding, for 6/3 (post free 7/-)

Fittings—A pair $1\frac{1}{2}$ in. brass hinges, two transfers (No. 5550) $\frac{1}{2}$ d.; 2 doz. $\frac{1}{4}$ in. screws 6 d. (postage $1\frac{1}{2}$ d.)

Edging Strips

If it is thought advisable to run in a few fret pins or small screws as additional fixing for the mouldings, these should be inserted in the centres of the cross bandings in the decoration.

Neat little edging strips are next cut off and prepared for fixing on the three sides of each of the panels. Cut off four strips $\frac{1}{2}$ in. wide and 27 $\frac{1}{2}$ ins. long, and two strips $\frac{1}{2}$ in., 11 $\frac{1}{2}$ ins. long, all $\frac{1}{4}$ in. thick, and carefully round off the sharp edges with the plane or with coarse and fine glasspaper. Fit and fix the long upright pieces first with glue and screws, the heads of the latter being counter-sunk.

Fig. 5 shows how the edging strips will appear when fixed on, and as

to the number of screws required, this again may be left to the discretion of the worker, but five should be found adequate for each of the upright strips and three for the top 11 in. pieces.

Finish

Whatever finish has been decided upon for the



Fig. 1—The front of the screen.

Fireplace Screen—(continued)

screen, should be done now, before either the transfers or the fretted overlays are put on.

If 3/16in. oak-faced plywood has been used, then a light oak stain should be carefully brushed on, and when quite dry a rubbing of wax polish given. Or, if preferred, a polish may be added, Hobbies Lightning polish being just the thing for the purpose. This can be applied either with a brush or with the proper polishing bob supplied with the outfit. The exposed cut edges of the plywood round the bottoms of the panels should be carefully coated twice or even three times with the brush and varnish.

Fretted Panels

The fretted panels are cut from 3/16in. white wood so they show up to perfection on the darker ground. Two pieces of sycamore are, therefore, prepared 12ins. long and 6ins. wide, and on one of them a number of inch squares should be drawn out to obtain one half of the design, as suggested in Fig. 7. Draw the squared lines lightly in pencil and then, following each individual square, fill in the curved decoration entirely to one half.

Next trace this off on to thin tracing paper, turn it over, put a piece of carbon paper beneath it and redraw to complete the whole of the decoration to the panel.

Cut Together

If a fretmachine is available, the two panels of the whitewood can be pinned together and cut simultaneously, thus relieving the work and shortening the time in cutting out. Should, however, the work be done with the handframe it would, perhaps, be advisable to cut one panel at a time; the corners and angles can be negotiated much easier and more cleanly this way.

Having the tracing paper already to hand, the necessary outlines on to the wood can be readily made by just erecting a centre line (in pencil) and then going over the lines of the decoration in the ordinary manner.

Clean up both surfaces of the panels carefully with fine glasspaper, rubbing always with the grain of the wood to avoid cross grain marks. Each fretted panel may be glued on and fine fret pins added at the corner to hold them flat while the glue is hardening.

(continued on page 650)



Fig. 2—The reverse side with its fretted panel.

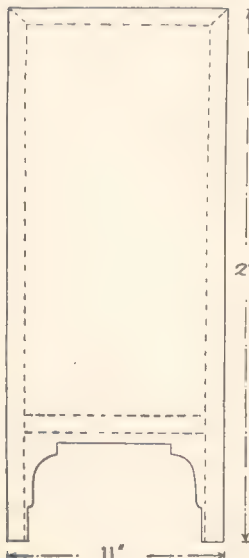


Fig. 3—One of the wings.

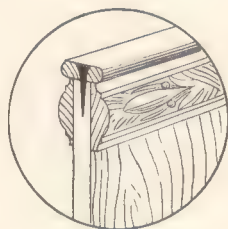


Fig. 5—Details of the construction.



The handsome moulding for the edge of the screen.



Fig. 6—A section showing the hinges fixed to the side strips.

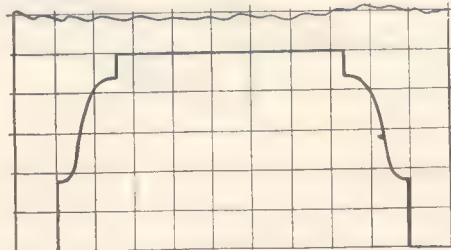


Fig. 4—The shape of the feet.

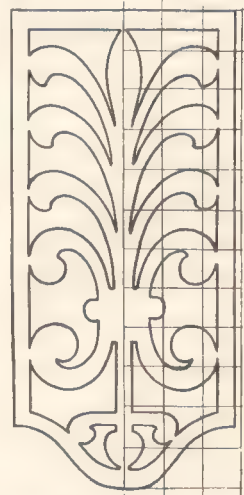


Fig. 7—The fretted panel.

A COMBINED TRAY AND BED-TABLE

It should be mentioned that the size of the various parts given in the list are exact, so it is advisable to make a small allowance for cutting and planing. The whole article can be either made from oak or mahogany wood; and

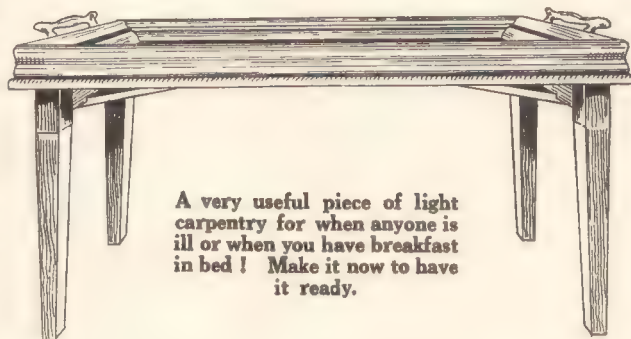
HERE is a splendid idea by means of which one can convert an ordinary tray of suitable dimensions into an exceedingly useful and indispensable Bed-Table that would, no doubt, be appreciated by convalescent persons confined to bed and receiving attendance at home.

Besides enabling the patient to consume meals much more comfortably and without fear of accidentally upsetting tea things, the collapsible hinged legs, with which the Tray is fitted, fold up compact and automatically beneath the article—thus in no way being awkward or troublesome when desired for ordinary domestic use.

Measurements

To cope with the sizes and shapes of the legs described in this article, the overall dimensions of the tray baseboard should measure exactly 19½ ins. long by 12 ins. wide by ½ in. thick—or a board slightly less by ½ in. in length and width. In fitting the legs to a tray of the latter size, this ½ in. reduction will, of course, require to be taken into consideration and allowed for ½ in. all round.

However, for the benefit of those who would like to make a suitable tray and fit it with the collapsible legs, the few necessary materials for this purpose have been included in the given List. The wood and complete fittings may be obtained from Hobbies Limited at the prices quoted in their new 1935 Handbook—a valuable mine of information for 6d. only!



A very useful piece of light carpentry for when anyone is ill or when you have breakfast in bed! Make it now to have it ready.

assuming the materials are at hand, square up the tray baseboard to finished size, then shape round the top face edges and clean over with glasspaper.

The handles used in this tray screw to the underside of baseboard, and as the screw flanges of these must lie flush, first pencil the position on the bottom at the centre of each end and then chisel suitable recessions for that purpose before mitring the moulding around the surface edges.

In following out this procedure, it is customary to keep the moulding in about ¼ in. from the outside edges, and then attach in place with flat

head screws from underneath, or fix permanently with glue and nails. In the former case, it is essential, of course, to countersink the holes to have the screw heads flush with base bottom.

Assembling the Legs and Rails

The legs are made from ¾ in. square wood, cut and tapered with a plane and the mortises

LIST OF MATERIALS

- 1 ½ in. thick baseboard. 19½ ins. long, 12 ins. wide.
- 2 lengths No. 25 tray moulding. 19½ ins. long.
- 2 lengths No. 25 tray moulding. 12 ins. long.
- 1 pair No. 3 brass handles.
- 1 shell transfer No. 1007. (If desired).
- 4 leg pieces. 8½ ins. long, ¾ in. wide, ¾ in. thick.
- 2 crossrails. 10½ ins. long, 1½ ins. wide, ¾ in. thick.
- 1 lath block. 3 ins. long, 1½ ins. wide, ¾ in. thick.
- 1 oak ½ in. lath support. 19 ins. long, 1½ ins. wide.
- 4 brass hinges. 1 in. long.
- 4 suitable rubber toes. (If desired).

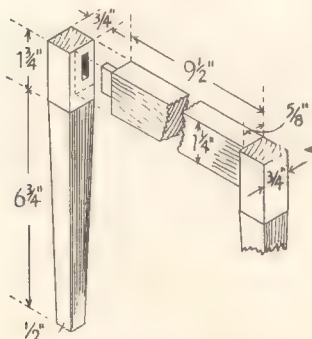


Fig. 1—How to shape and fit the legs,

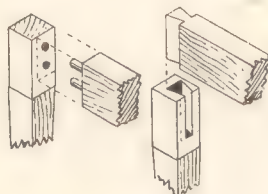


Fig. 2—Two other methods of construction.

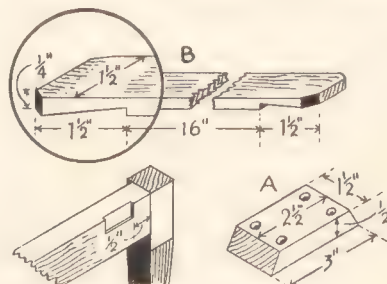


Fig. 3—Size and details of various parts.

Tray and Bed-Table—(continued)

chiselled out at the top ends as shown in Fig. 1. Suitable tenons are then made on each end of the crossrails to fit neat into the legs. These should project $\frac{1}{2}$ in. and the distance between the shoulders should measure $9\frac{3}{4}$ ins. as shown.

At Fig. 2 will be seen two alternative methods of construction, the first being simple dowelling and the other the more elaborate method of dovetailing. The dowelling used in the former should be only $\frac{1}{4}$ in. round rod and project $\frac{1}{2}$ in. like the tenons and dovetails.

Whatever method has been decided upon, be sure to have the legs so they will correspond right and left, and incidentally, so the crossrails will come even with one side of the legs to show the break of an $\frac{1}{2}$ in. at the front as indicated by the dotted lines.

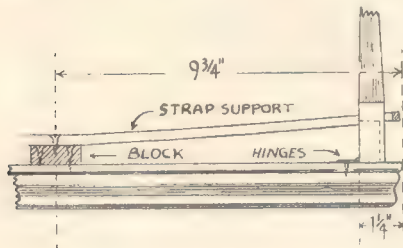


Fig. 4—Half sectional detail of construction.

The strap lath support (b) and blocking piece (a) are now made as shown in Fig. 3. A glance at the inset explains how the ends of the support are checked to grip on the crossrails (see Fig. 4). Drill holes in the block piece to suit four $\frac{3}{8}$ in. by 6 flat head screws, and two holes in the support for similar screws.

Before staining and polishing the parts, chisel notches for the hinges an $\frac{1}{2}$ in. from the shoulder joints as shown by the detail at Fig. 3. These notches should be made deep enough for the closed hinges to fit flush with the crossrails.

Final Construction

When the parts are thoroughly dry, set the Tray

upside down on some soft material to prevent the polished surface from being scratched. (For purposes of this kind, an excellent idea is to make two wooden pad laths—size approximately—30 ins. long by $4\frac{1}{2}$ ins. wide by $\frac{1}{2}$ in. or $\frac{3}{4}$ in. thick, and cover one flat side of each with suitable strip cuttings of soft carpet or felt). Select the legs and screw them in position by the hinges as explained by the half sectional side view at Fig. 4.

The blocking piece is screwed in the centre of base (see Fig. 5) and the lath support screwed on top. As the support acts as a spring, it is highly essential to have it made from some hardwood

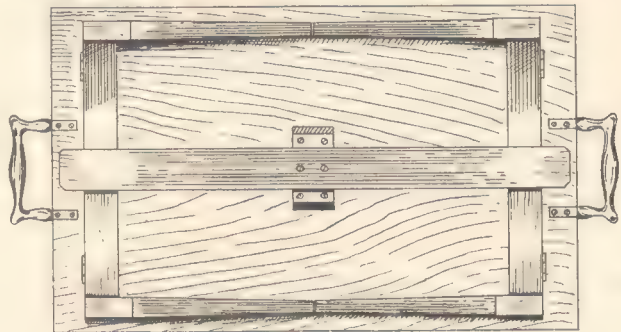


Fig. 5—Top view of the bottom showing how the legs fold.

such as oak or birch.

Have the legs closed when screwing this in position and thereupon raising these, the checks of the support should engage tightly with the rail edges and hold them rigidly in place as seen by the picture of the finished article.

When not required as a Bed-Table (or Breakfast Table), it is quite a simple matter to lift the lath ends and fold down the legs, the springiness of the other keeping them in place.

Unless otherwise not desirable, four rubber toes could be fixed to the top sections of the folded legs as a precaution against any likelihood of the article marking polished surfaces.

Fireplace Screen—(continued from page 648)

For the reverse side of the screen two of Hobbies No. 5550 transfers are suggested.

Then the transfer is slid along the backing paper until a little piece projects beyond the edge. Put the projecting piece in place on the work, the exact position having been previously marked with a pin-prick or light pencil mark. Hold it down and gently slide the paper away from beneath the transfer allowing it to settle down into place on the wood. Finally press down lightly with a soft cloth or sponge and leave to dry.

WOOD AND FITTINGS REQUIRED

2 pieces $\frac{1}{2}$ in. thick plywood 27 ins. by 11 ins.
2 pieces $\frac{3}{16}$ in. thick whitewood 12 ins. by 6 ins.
1 piece $\frac{1}{2}$ in. thick satin walnut 28 ins. by 3 ins.
Moulding No. 130—8 pieces 27 ins.
Moulding No. 130—4 pieces 11 ins.
Moulding No. 130—4 pieces 9 ins.
1 pair $1\frac{1}{2}$ in. brass hinges.
2 transfers (No. 5550).
2 1/2 doz. $\frac{1}{2}$ in. flat-head screws.

The work of hinging the two leaves of the screen together is very simple, a pair of $1\frac{1}{2}$ in. brass hinges being screwed on as shown in Fig. 6.

Hobbies have prepared a special parcel of birch plywood and moulding all cut to convenient sizes ready for trimming up, including white wood for the overlays. Parcel No. TM 285 should be asked

for when sending, the price of it being $8/9$ post free.

The two transfers shown are 16 ins. long and 3 ins. wide, and they are 7d. each. Other types of transfers can be seen from Hobbies special lists which can be obtained from any of our branches.



THOSE of you who have made enlargements know how a tiny negative can make a most imposing picture when magnified two or more times. The enlargement shows detail unnoticeable in a little contact print. There is, however, a limit to the size of enlargements that it is practicable to make, but if you make your negatives into lantern slides you can throw on the screen a picture 6 feet square—or more! There is no more lovely way of showing a good photograph than by lantern—there is a luminosity and transparency which no print, however good, can give.

But the negatives to be made into slides must be good. A poor, flat, underexposed or fogged negative is useless for the purpose. Negatives for slide making must have been correctly exposed, developed and should be full of detail and not too dense.

Three Grades of Plates

The standard measurement of a lantern plate is $3\frac{1}{4} \times 3\frac{1}{4}$ inches, so that if your camera takes films measuring $4\frac{1}{4} \times 3\frac{1}{4}$ (i.e. quarter plate) you can, by sacrificing part of the picture, make a slide by contact printing. Those of you who have made gaslight prints will understand the process. A special frame is made, but it is possible to use an ordinary printing frame. Lantern slides are made in three grades—bromide, chloro-bromide and chloride. The two first are used for strong and normal negatives, whilst chloride plates, which are much slower, are suitable for thin delicate ones.

The Frame-up

A sheet of clean glass is placed in the printing frame, then the negative, film side up, and lastly the lantern plate, its film side towards the film of the negative. The back of the frame is then fastened. All this has to be done in the dark room, but as lantern plates are not as sensitive to light as

ordinary plates and films, an amber or yellow light such as is used for bromide printing, may be used with safety.

The lantern plate is then exposed to light in the same manner as in gaslight printing. No suggestions as to the exposure necessary can be given as it depends on the type of negative, make of plate, and the intensity of and distance from the light employed. For the first attempt, it is well to print the plate in strips, covering a third of it after each exposure and doubling the exposure each time. (See "Gaslight Printing" Hobbies p. 1055). Though this procedure entails the sacrifice of a plate it is really a saving as no more need be wasted, one is sure of the correct exposure and, the factors being constant, one can make other slides with certainty.

The Question of Size

Before going on to development we have first to consider the procedure necessary when it is impossible to make a slide by contact owing to the negative being either too large or too small. If the negative is quarter plate or larger and we wish to include the whole of it on the slide it is necessary to reduce it to lantern plate dimensions. Provided we have an enlarger with sufficient length of bellows this can be used, but if not the negative must be copied with a camera. One with a focusing screen is essential and the dark slide must be adapted to take a lantern plate.

Copying

A simple method of copying is to fix the negative in an opening cut in a sheet of three-ply wood, or stiff card. Illumine this evenly from behind by an electric lamp with a "pearl" or ground glass finish. If the light is not even it may be



The arrangement of accessories for slide making.

Making Lantern Slides—(continued)

necessary to interpose a sheet of ground glass between the negative and the light. On the opposite side of the negative set up the camera. Focus carefully and stop down if necessary to get dead sharpness (See sketch).

With the small negatives so common nowadays it is necessary to enlarge them on to lantern plates. An enlarger is used in the same way as for bromide paper (See "How to Enlarge" Hobbies p. 1171).

A Developer

After exposure the plate has to be developed. The following formula (recommended by Welling-ton for use with their plates) will be found suitable for most brands.

Metol, 20 grains.
Hydroquinone, 60 grains.
Sodium Sulphite (cryst), 700 grains.
Sodium Carbonate (cryst), 700 grains.
Potassium Bromide, 6 grains.
Water to 20 ounces.

For use dilute with an equal quantity of water.

Development

This developer must not be used at a lower temperature than 60°, and a good working temperature is from 65° to 70°. The time of development depends on the make of plate and the colour of the slide wanted, and the makers' instructions should be strictly adhered to. With practice one can tell when a slide is sufficiently developed by its appearance as it lies in the dish. When fully developed the plate is well rinsed in cold water and transferred to the following fixing bath:—

Hypo, 4 ounces.
Potassium Metabisulphite,
200 grains.
Water to 20 ounces.

Plates should be fixed until the whole of the white appearance disappears from the back and then for as long again. They must then be washed in the same manner as ordinary plates and films.

Careful Drying

It is important that the slide should be dried in a dustless room.

When it is realised that every mark will be magnified on the screen the importance of avoiding even a speck of dust will be obvious.

Lastly the slides have to be masked, mounted and spotted. Any part that is not required to show on the screen must be covered over. This is usually done by laying plain gummed

strips of paper, made for binding slides, on the unwanted portions, so blocking them out. Next, cover glasses have to be fixed to the slides. These are plain sheets of glass, $3\frac{1}{4} \times 3\frac{1}{4}$ inches (spoilt lantern plates will do), and are needed to protect the film side of the slide. The slide should be thoroughly dried before mounting and then this and the cover glass are neatly stuck together with binding strips bought for the purpose.

Reversing the Slides

In order to show which way the slide is to be put into the lantern, on the two top corners are stuck small circles of paper. The lanternist then knows that if he puts in the slide with the spots at the bottom, the picture will be the right way up on the screen.

Cases for lantern slides can be bought and these are very convenient when exhibiting; for ordinary storage purposes however the boxes in which the plates are bought serve admirably.

How to make a simple magic lantern was described in Hobbies Weekly, dated Nov. 17th, 1934 and copies are still obtainable for 3d. post free.

NATURE NOTES

A Glutton for Fish

WHILE on holiday at the seaside, you may have often seen a fairly large bird, with long formidable-looking beak, flying in direct manner, just over the surface of the water, some distance from the shore.

This is the cormorant, which is really an inland bird, that has chosen the safety of the ocean, owing to the persecution of man. In any case, "there are as many fish in the sea, as ever came out of it," and the cormorant is a glutton for fish.

This interesting bird, however, still haunts our inland waters, particularly so in the Lake District, where it breeds. One can be sure of seeing it over the deep mountain-shadowed Ullswater; lovely Derwentwater;

shimmering Conistow Water; lonely Wastwater, and other beautiful lakes.

It often alights on a boulder in a semi-erect position, expanding its wings occasionally. Its plumage is dark bronze and beautifully textured. It is one of the most adept of divers, and its gluttony for fish is tremendous, as most of you must have witnessed at the Zoo, during feeding time.

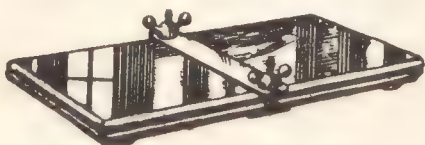
Its extensible throat, like the heron's, allows it to swallow (or gorge is a better word) quite large fish. Cormorants are quite gentle and easily tamed.

In fact, the Chinese have utilized them for centuries to do their fishing—a cord being tied round their necks to prevent them swallowing their catches. They reap their reward at the end, when neck-ties are taken off, and they receive part of their catch.

The cormorant builds a large flat nest of seaweed or twigs, depending on locality and lines it with herbage—the shore cliffs being its favourite choice. It usually lays three eggs of a whitish colour. The youngsters when feeding put their beaks well down the throats of their parents.—A.S.M.

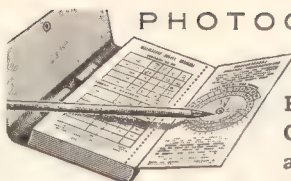


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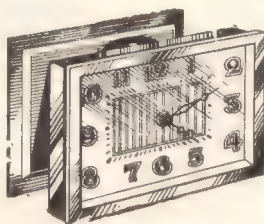
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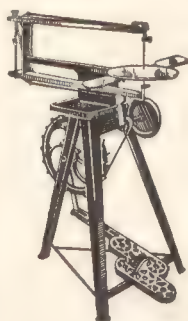
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TESTS FOR SHARP EYES

PHILATELY, more than any other hobby excepting perhaps nature study, should train enthusiasts to have sharp eyes. This training is, of course, a gradual process, there are no rules which, when once mastered, enable a person to say that they are a trained philatelist.

This week five pairs of stamps which appear to be somewhat



similar have been picked out for illustration and discussion.

Can you, before reading through this article, pick out the difference between each? You may say, or rather think, that the difference is a matter of colour. Unfortunately, it is forbidden to reproduce stamps in colour, black and white is all that is allowed. This being the case, colour does not, of course, enter into it, there is a difference in design—it is not a matter of watermark, nor of perforation either. Before leaving the question of colour though, it may be as well to warn readers about imagining that they have a valuable stamp because they cannot find a reference in their catalogue to a stamp with the same colour as



a specimen they have in their collection.

The trouble is that the colour, as

given in a catalogue, refers to mint copies and few collectors are able to guarantee that the stamps in their albums have always received perfectly fair treatment ever since they left the counter of the post office at which they were bought.

FOR example, how was the paper removed from off the back of the stamp? If the stamp was soaked in a bowl of water in such a way that the water came in contact with the surface of the stamp, then the colour will most likely be affected.

Have you ever noticed cards of stamps for sale in a shop window? Then if you have, you may have also noticed that some of these specimens are very badly faded, particularly if the sun's rays have actually fallen on the stamps.

A third cause of a stamp appearing to be incorrectly coloured may be that it has been in contact with the face of another stamp in an envelope, which quite likely the colour from one will affect that of the other.

NO, the five pairs have differences which every collector who has sharp eyes should be able to spot without trouble.



They are distinctly different stamps, and not varieties of the same issue. In the case of four of the pairs, each stamp was issued in different years, while in the case of the pair from The Argentine they were the same year but not the same day of the year.

SUPPOSE we take the pair from the Argentine first. In the panel at the bottom of the stamp you see the words "Buenos Aires—Agosto de 1921." This stamp was

issued on Oct. 7th, 1921, as a temporary measure owing to the fact that forgeries of the 5c. portrait of San Martin type were in circulation. On Oct. 30th of the same year the other stamp was



issued, and, as will be seen, the words at the bottom have been changed to "Republica Argentina."

Now take the two from Holland. The colour in each case is grey and the perforation is the same. The difference lies in the spacing of the lines of shading behind the Queen's head, for in the issue of 1898 the lines are very close together indeed. In fact, it is difficult to tell that they are separate lines at all. Four years later the second of this pair was issued, and, as can be seen, the lines are far more widely spaced.

NOW for the Norwegian pair. Again the actual stamps would not help us very much further. The watermark is the same, the perforation and the colour. The difference as you have already probably noticed lies in the letters forming the word NORGE.

Eight years separate these two



issues. In the first (in 1890) Egyptian capitals were used, while in the later issue the capitals were
(Continued on next page)

The Stamp Collector—(continued)

changed to Roman. Perhaps it would be a help to some to know that Egyptian capitals are those with plain letters (the ends of each letter being perfectly straight). In this case there are plenty of minor differences, such as the shading of the post-horn, but here we are dealing with major differences.

THE two from Russia show a difference which has considerable significance. Just below the

eagle in the centre will be seen two post-horns in the 1883 issue, but in the 1889 issue these two post-horns have what are called thunderbolts entwined. These were added to denote an amalgamation between the post and the telegraph services. So by this sign we can tell stamps issued before 1889.

The last two, from Switzerland, show another well-known difference. Notice that in one stamp the cord of the crossbow passes in

front of the stock while in the other it is behind the stock. The first was issued in 1908, and the second in 1910.

There are many more examples of stamps to a great extent similar, yet which differ in some important detail, and the search for such varieties is a fine exercise for the eyes, and each 'find' gives great satisfaction.

Try it and see how many differences you can find.

MISCELLANEOUS ADVERTISEMENTS

The small "to sell" or "wanted" announcements appearing below are accepted from readers who want to sell anything except fretwork goods, or from usual advertisers of bargains of interest. The advertisements are inserted at the rate of 2d. per word. Name and address are counted, but initials or groups, such as E.P.S. or £1/11/6 are accepted as one word. Postal Orders and Stamps must accompany the order.

We cannot guarantee any date for these to appear, but they will be inserted in the earliest issue.

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MOVIES AT HOME. How to make your own Cinema Projector. Particulars free.—Moviescope (H), 116, Brecknock Road, London.

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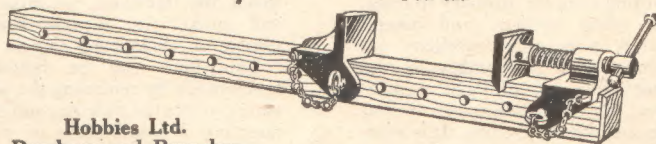
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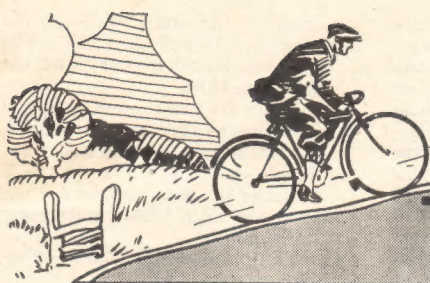
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NOTES OF INTEREST TO THE CYCLIST

A Novel Gadget

SEVERAL novelties in rear lights have been seen during the last few years. The latest, and one of the most attractive, is shown in the illustration. It not only serves as a rear light, but as a direction indicator as well.

Constructed on the arrow principle familiar as a car accessory, it acts as a safeguard against running down. It is operated by a three-way switch on the handlebar. The current can be supplied by either a battery or dynamo.

The red rear light between the arrows can be switched on separately from the indicators, and the outfit, comprising case, bulbs, switch and flex, sells at 3s.

Your Touring Kit

CYCLING touring will begin in earnest at Easter, particularly as the holiday falls late this year. If this is to be your first tour, you may find that the choice of kit presents some difficulty.

A good rule is to make a list, and then cross out every article that is not really essential. Every cyclist has his own preferences, but the following is a typical list made by an experienced club rider.

Spare shirt and stockings; night attire; handkerchiefs; soft collars (unless an open-necked shirt is worn); small mending case containing needles, thread and buttons; comb; tooth-brush; cape and cap or sou'wester; and cycle repair outfit, including tools.

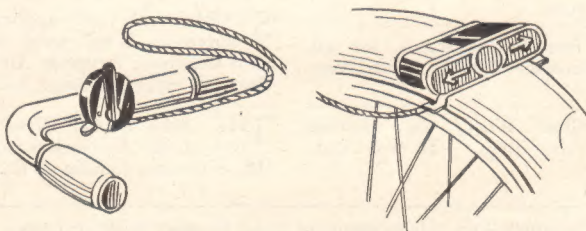
If you are camping, remember that you will not only want camp gear, but also a warmer outfit of clothing than for ordinary touring. The many cyclists' and hikers' hostels now offer excellent accommodation to members of the association and affiliated associations, which include many cycling organisations and clubs. It is wise, however, to book accommodation in advance.

Cleaning and Polishing

BRIGHT days call for bright bicycles, and during the spring and summer months there is certainly little excuse for a muddy mount. Though cleaning may be quickly made futile in winter by the muddy roads, no excuse for such lack of attention is satisfactory in summer.

If you value the enamel of your machine, never rub off mud when it is in a hard state. It should first be softened. Wipe the enamel with a damp cloth, gently, as a preliminary step. Furniture polish gives a good gloss to the enamelled parts of a bicycle, but you must polish vigorously. Any polish left on the machine after cleaning will collect dust.

For chromium plated parts, there is nothing better than an old newspaper. Crumple it until it is soft, and then use it like a polishing duster.



The Electric Direction Signal mentioned.

Getting Home

THOUGH the modern bicycle is a reliable machine, occasions sometimes arise in which the failure of some small part puts the whole cycle out of action. Breakage of the small "pawl springs" inside the freewheel, for instance, will make the bicycle useless except on downward slopes.

This fault can be remedied temporarily by removing the plate which covers the bearings and then inserting a small piece of valve rubber in place of the broken spring. The machine will then be

rideable, if pedalling is performed with discretion.

Alternatively, it is possible with some bicycles to turn the free-wheel into a fixed wheel. This can usually be done by pushing a nail of suitable length through one of the holes in the side of the freewheel.

Foiling Cycle Thieves

AN epidemic of cycle stealing has arisen during recent months, and to ensure that your machine can be safely left while you make a call, some handy locking device is desirable.

Several patented ideas are on the market, and they are usually designed to lock one wheel of the machine. The type of lock that fastens the big chain wheel by the bottom bracket of the frame is not as satisfactory as one that locks the rear cycle wheel. A freewheel bicycle with a locked chain wheel can be wheeled away, even though it cannot be ridden. If the machine has a fixed sprocket in place of a freewheel, the simple expedient of

slipping the chain from the sprocket will render it movable, even with the big chain wheel locked.

By far the best plan is to fit a gadget that shoots a strong bolt through the rear wheel. Some cyclists prefer to use a chain and padlock, with which they fasten the wheel. If you adopt this idea, remember to pass the locking chain

right through the wheel and round the mudguard or back wheel forks. It is insufficient to put the chain round only one spoke. The simple operation of snapping that spoke would release the wheel.

The Highway Code

HOW many cyclists have taken the time or trouble to read the Highway Code issued by the Ministry of Transport? Although primarily intended for motorists, it contains so much useful information for both cyclist and pedestrian that it is well worth perusing. A copy is obtainable for 1d.

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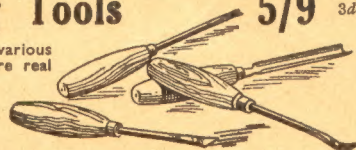
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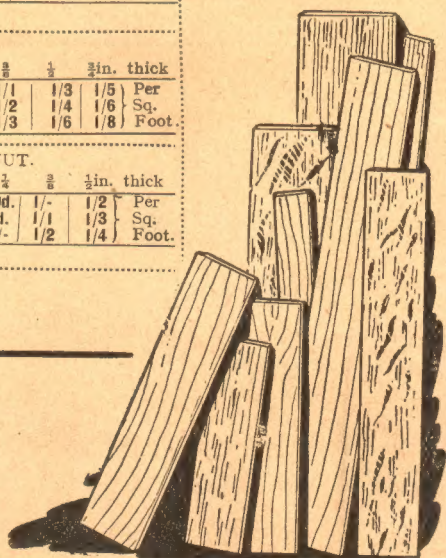
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